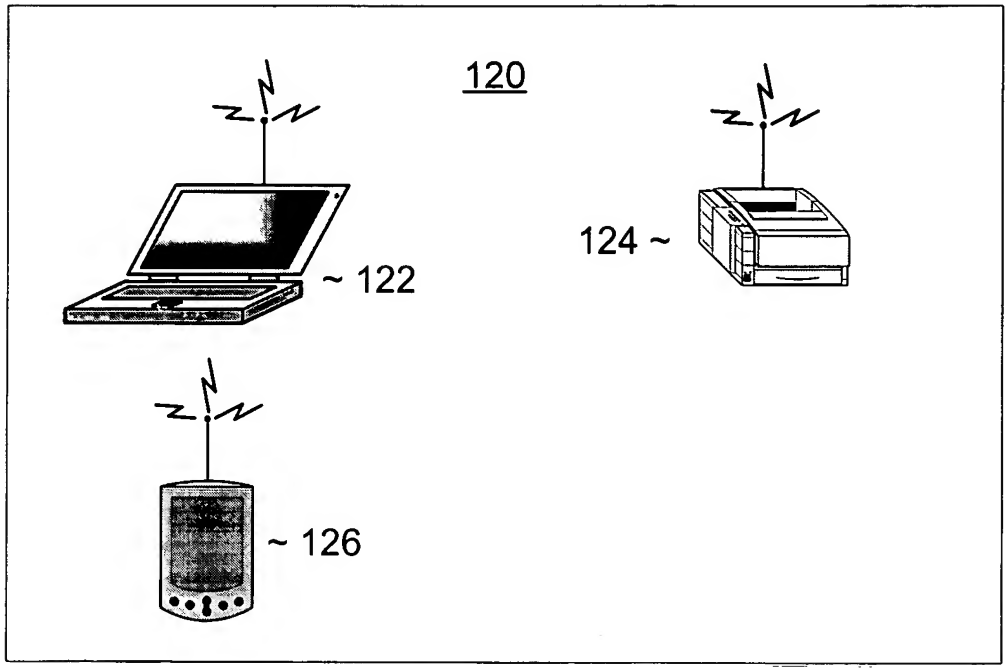

FIG. 1

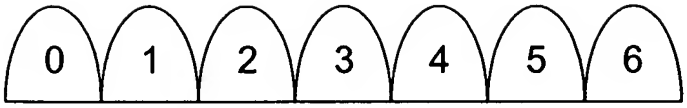
0
1
2
3
4
5
6

FIG. 2

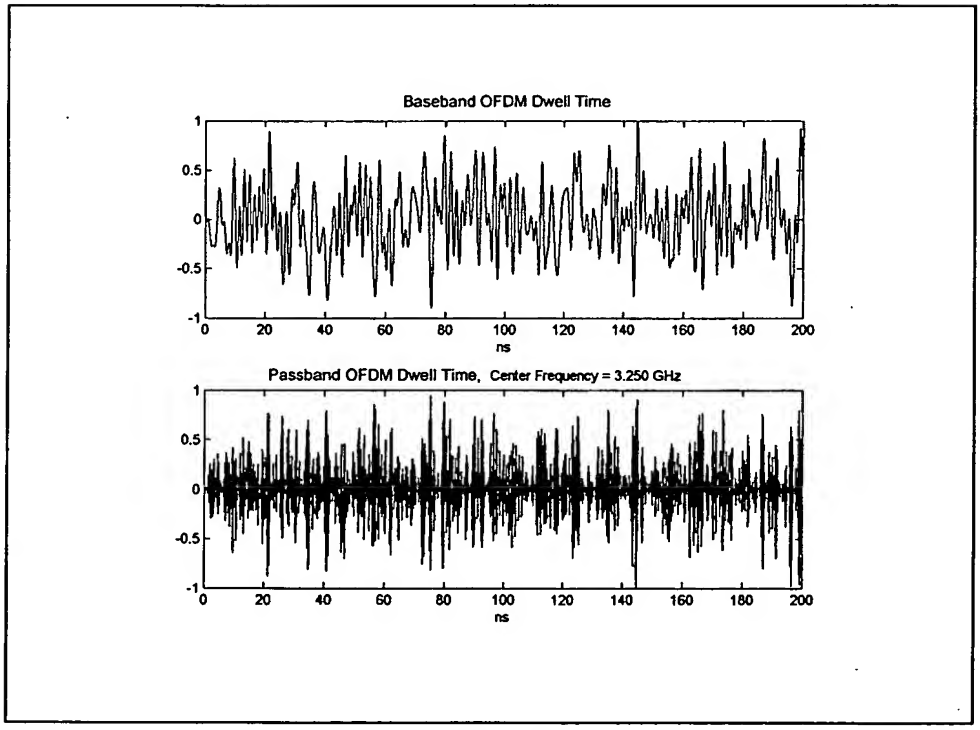
Baseband OFDM Dwell Time
1
0.5
0
-0.5
-1
0
20
40
60
80
100
120
140
160
180
200
ns
Passband OFDM Dwell Time, Center Frequency = 3.250 GHz
1
0.5
0
-0.5
-1
0
20
40
60
80
100
120
140
160
180
200
ns

FIG. 3

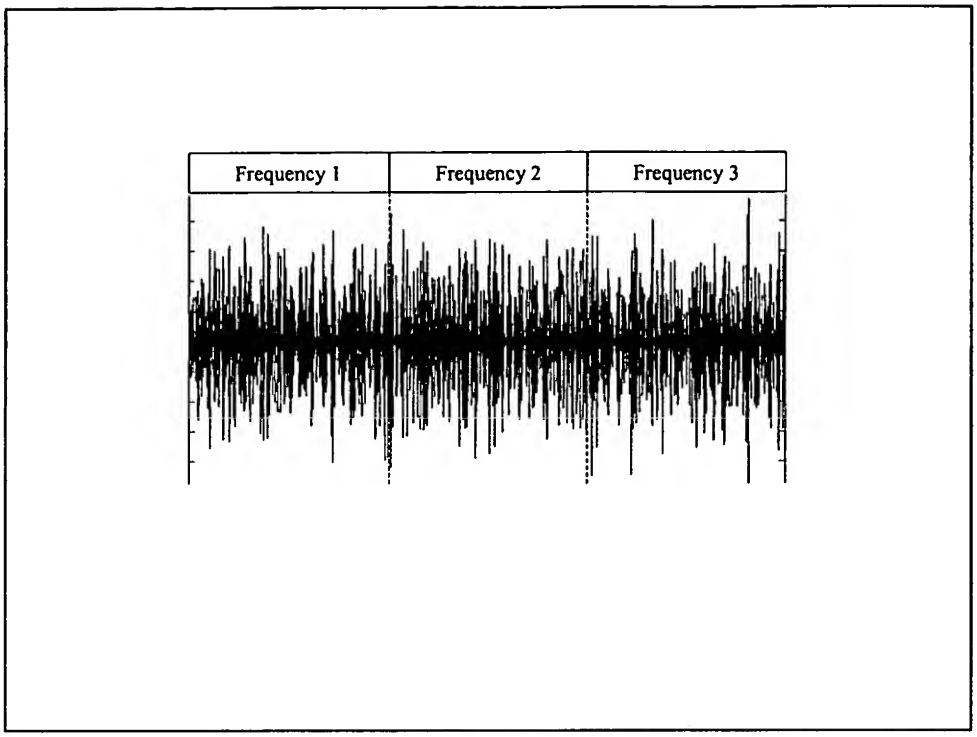

FIG. 4

	t0	t1	t2	t3	t4	t5	t6
Code 1	0	1	2	3	4	5	6
Code 2	0	2	4	6	1	3	5
Code 3	0	3	6	2	5	1	4
Code 4	0	4	1	5	2	6	3
Code 5	0	5	3	1	6	4	2
Code 6	0	6	5	4	3	2	1

FIG. 5

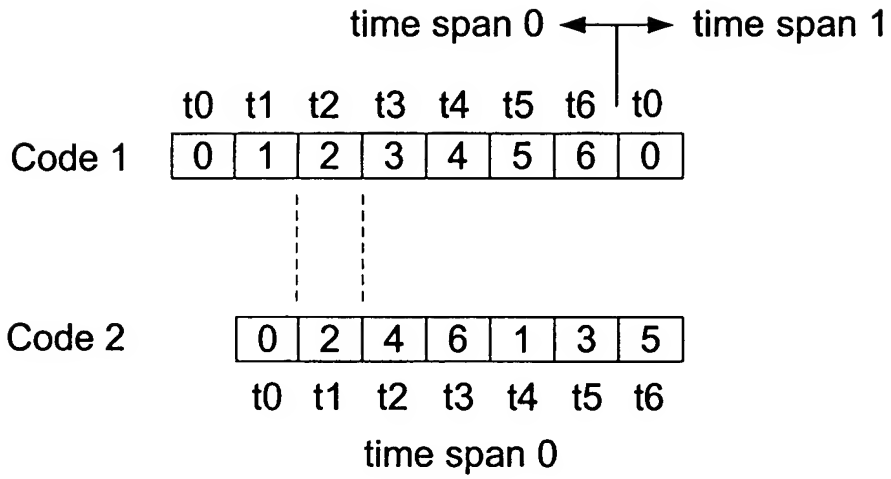
time span 0
time span 1
t0 t1 t2 t3 t4 t5 t6 t0
Code 1
0 1 2 3 4 5 6 0
Code 2
0 2 4 6 1 3 5
t0 t1 t2 t3 t4 t5 t6
time span 0

FIG. 6

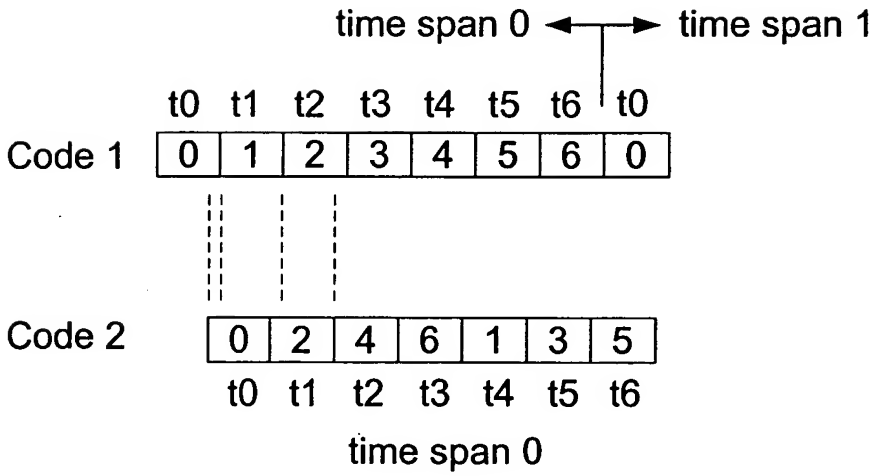
time span 0
time span 1
t0 t1 t2 t3 t4 t5 t6 t0
Code 1
0 1 2 3 4 5 6 0
Code 2
0 2 4 6 1 3 5
t0 t1 t2 t3 t4 t5 t6
time span 0

FIG. 7

	t0	t1	t2	t3	t4	t5	t6
Code 1	0	1	2	3	4	5	6
Code 2	0	2	4	6	1	3	5
Code 3	0	3	6	2	5	1	4
Code 4	0	4	1	5	2	6	3
Code 5	0	5	3	1	6	4	2
Code 6	0	6	5	4	3	2	1

FIG. 8

	t0	t1	t2	t3	t4	t5	t6
Code 1	0	1	2	3	4	5	6
Code 2	0	2	4	6	1	3	5
Code 3	0	3	6	2	5	1	4
Code 4	0	4	1	5	2	6	3
Code 5	0	5	3	1	6	4	2
Code 6	0	6	5	4	3	2	1

FIG. 9

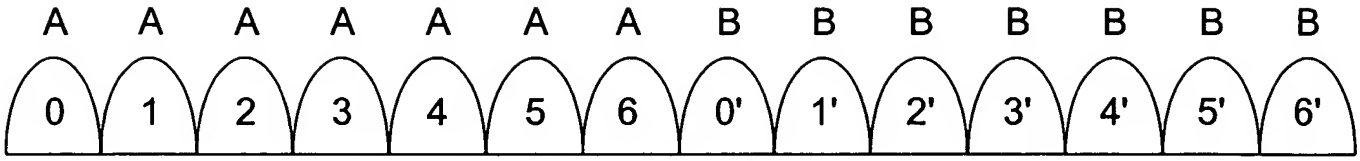

FIG. 10

	t0	t1	t2	t3	t4	t5	t6	t0'	t1'	t2'	t3'	t4'	t5'	t6'
Code 1	0	1	2	3	4	5	6	0'	1'	2'	3'	4'	5'	6'
Code 2	0	2	4	6	1	3	5	0'	2'	4'	6'	1'	3'	5'
Code 3	0	3	6	2	5	1	4	0'	3'	6'	2'	5'	1'	4'
Code 4	0	4	1	5	2	6	3	0'	4'	1'	5'	2'	6'	3'
Code 5	0	5	3	1	6	4	2	0'	5'	3'	1'	6'	4'	2'
Code 6	0	6	5	4	3	2	1	0'	6'	5'	4'	3'	2'	1'

FIG. 11

	t0	t1	t2	t3	t4	t5	t6	t0'	t1'	t2'	t3'	t4'	t5'	t6'
Code 1	0	1	2	3	4	5	6	0'	1'	2'	3'	4'	5'	6'
Code 2	0	2	4	6	1	3	5	0'	2'	4'	6'	1'	3'	5'
Code 3	0	3	6	2	5	1	4	0'	3'	6'	2'	5'	1'	4'
Code 4	0	4	1	5	2	6	3	0'	4'	1'	5'	2'	6'	3'
Code 5	0	5	3	1	6	4	2	0'	5'	3'	1'	6'	4'	2'
Code 6	0	6	5	4	3	2	1	0'	6'	5'	4'	3'	2'	1'

FIG. 12

	t0	t1	t2	t3	t4	t5	t6	t0'	t1'	t2'	t3'	t4'	t5'	t6'
Code 1	0	1	2	3	4	5	6	0'	1'	2'	3'	4'	5'	6'
Code 2	0	2	4	6	1	3	5	0'	2'	4'	6'	1'	3'	5'
Code 3	0	3	6	2	5	1	4	0'	3'	6'	2'	5'	1'	4'
Code 4	0	4	1	5	2	6	3	0'	4'	1'	5'	2'	6'	3'
Code 5	0	5	3	1	6	4	2	0'	5'	3'	1'	6'	4'	2'
Code 6	0	6	5	4	3	2	1	0'	6'	5'	4'	3'	2'	1'

FIG. 13

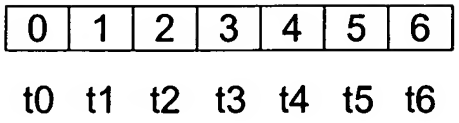

FIG. 14

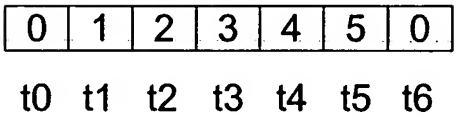

FIG. 15

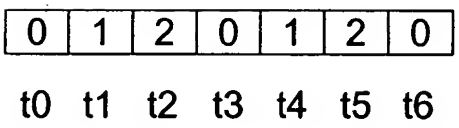

FIG. 16

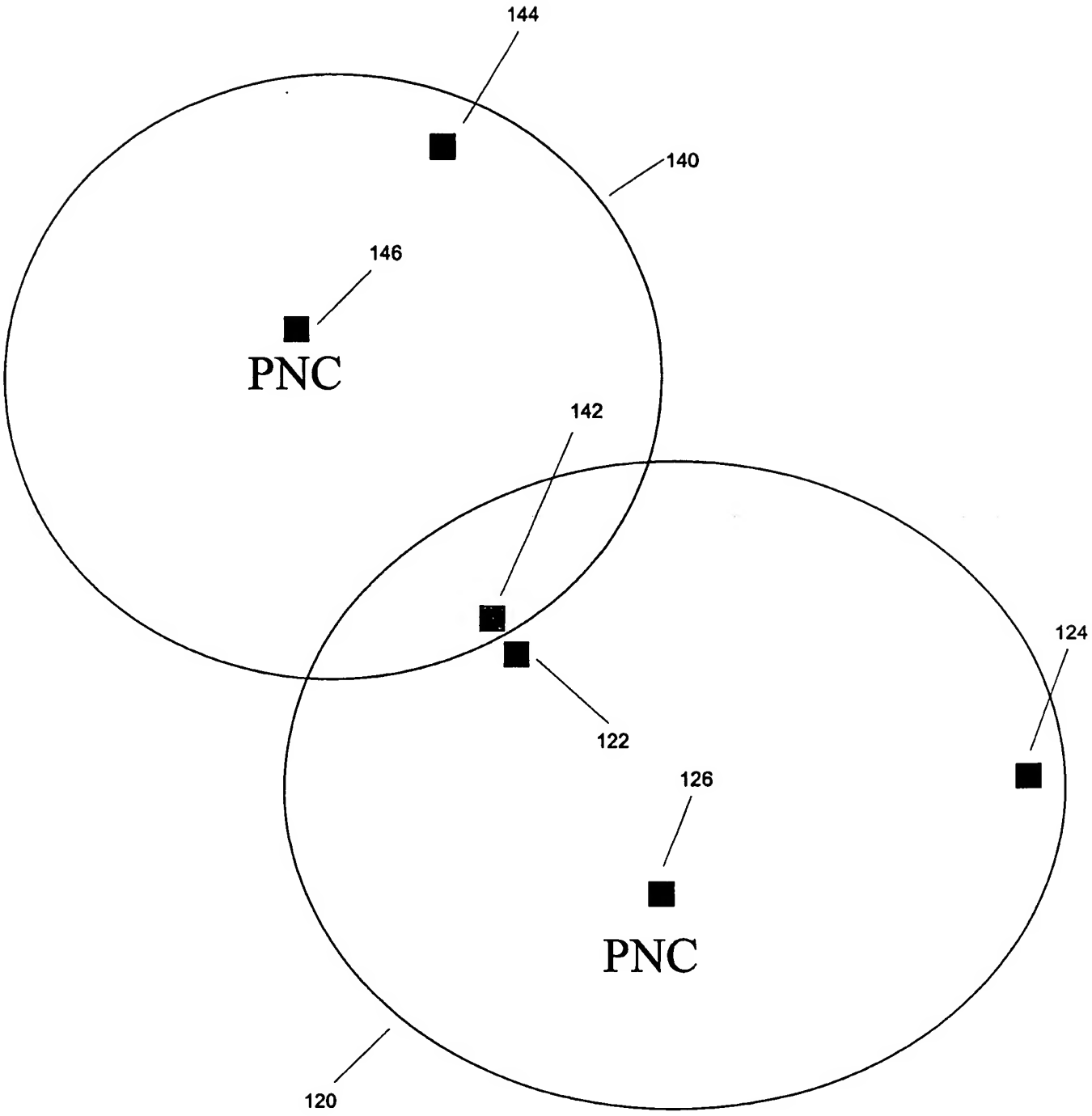

FIGURE 17

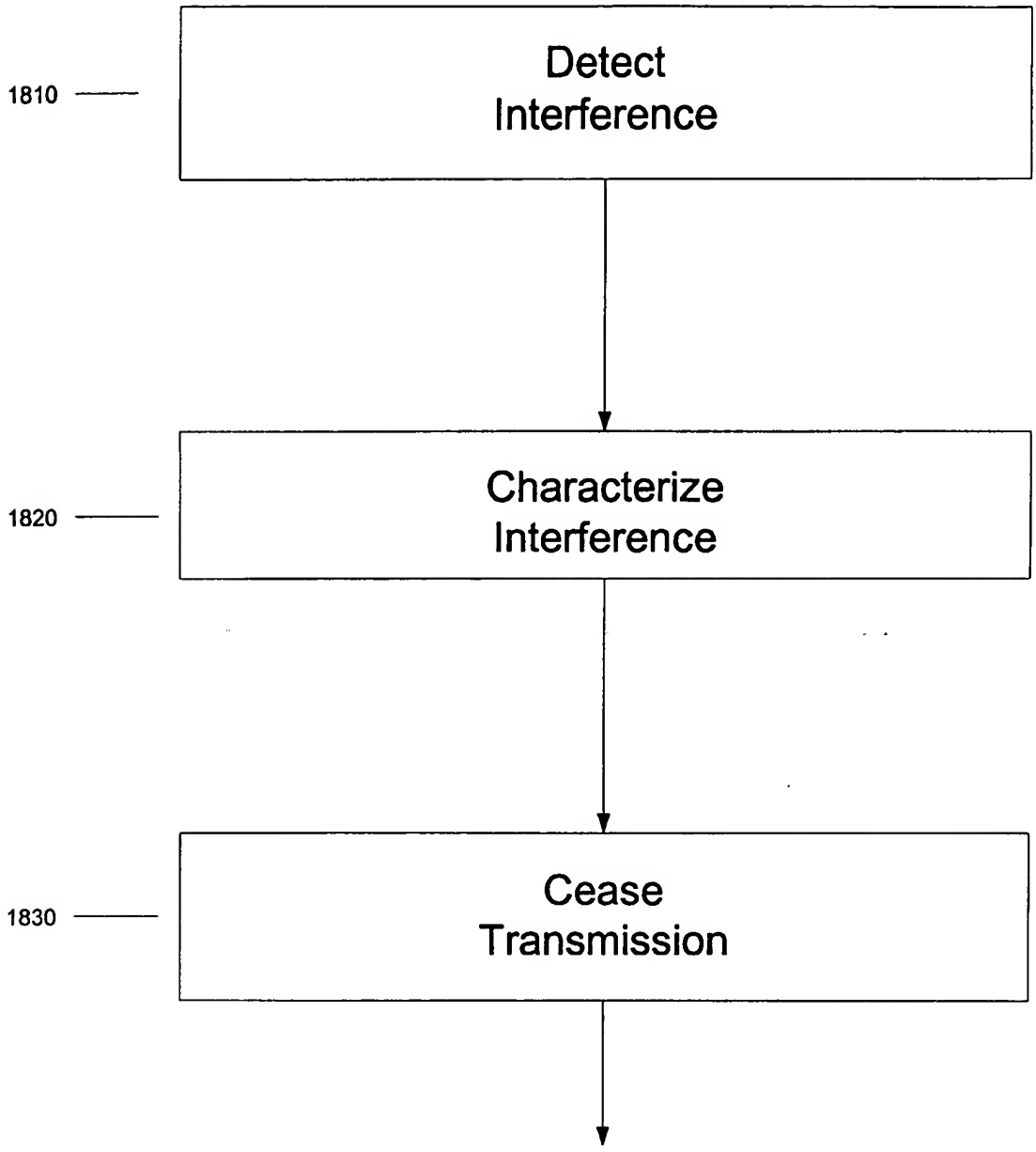
1810
Detect Interference
1820
Characterize Interference
1830
Cease Transmission

FIGURE 18

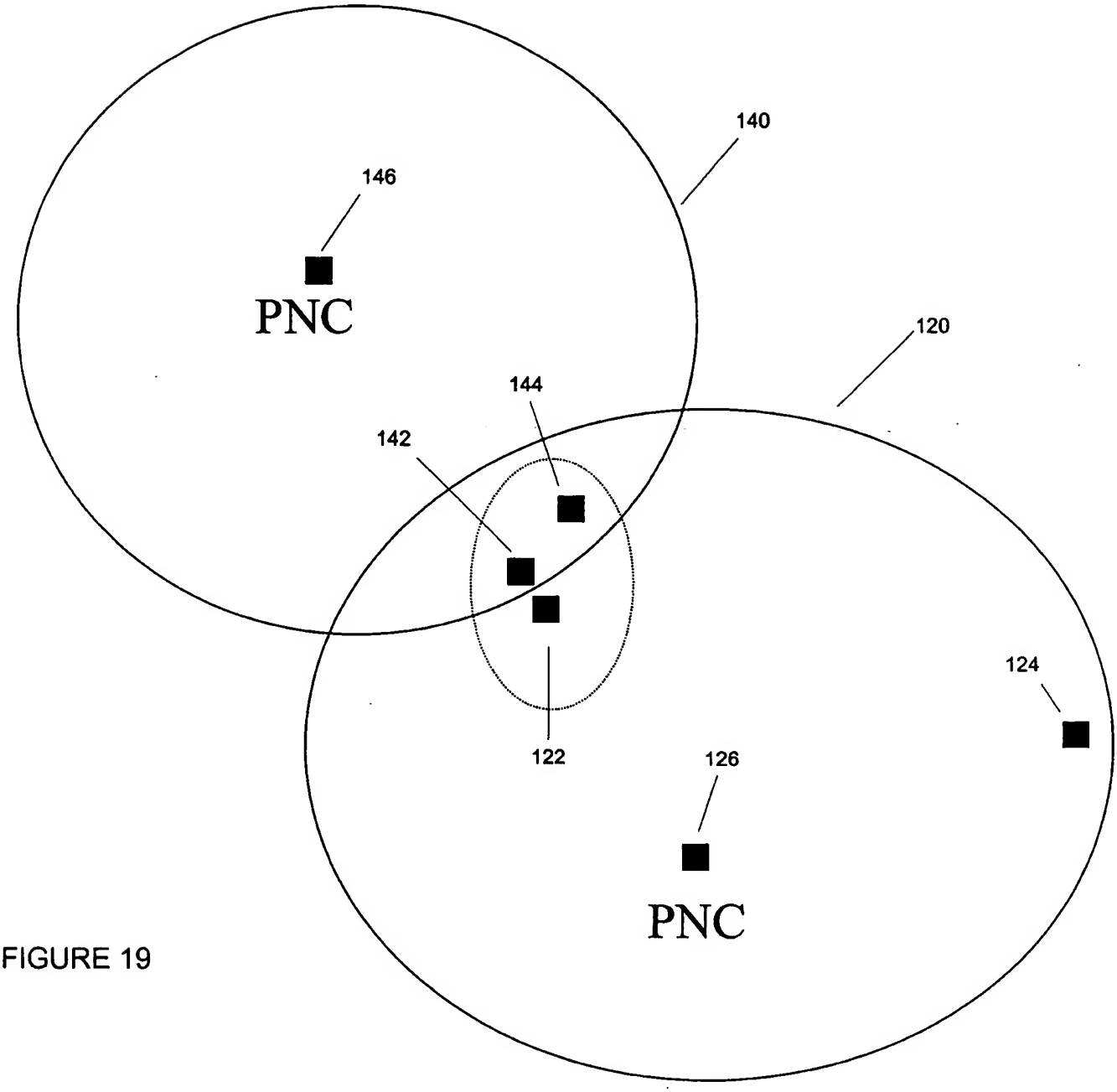

FIGURE 19

1510-Mode 1 – only 1 piconet
(All 7 bands are used)

1520-Mode 2 – 2 piconets
(Upon detection of interference,
existing piconet gives up bands 2,3 &5)

1530-Mode 3 – 3 pico-nets
(Upon detection of additional interference,
1'st incumbent gives up bands 4&7,
2'nd incumbent gives up band 3
and acquires band 7)

Mode 4 – 4 pico-nets
(Upon detection of additional
interference,
1'st incumbent gives up band 6,
2'nd incumbent gives up band 5,
3'rd incumbent gives up band 4,
and acquires band 6)

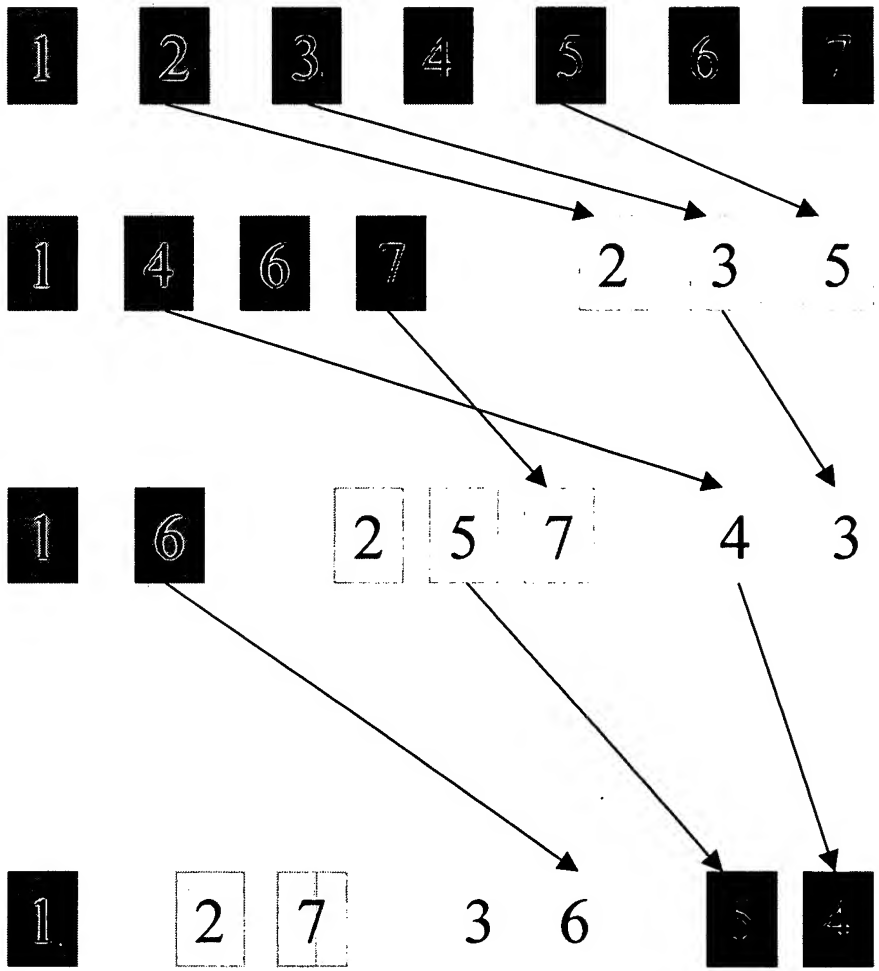

FIGURE 20

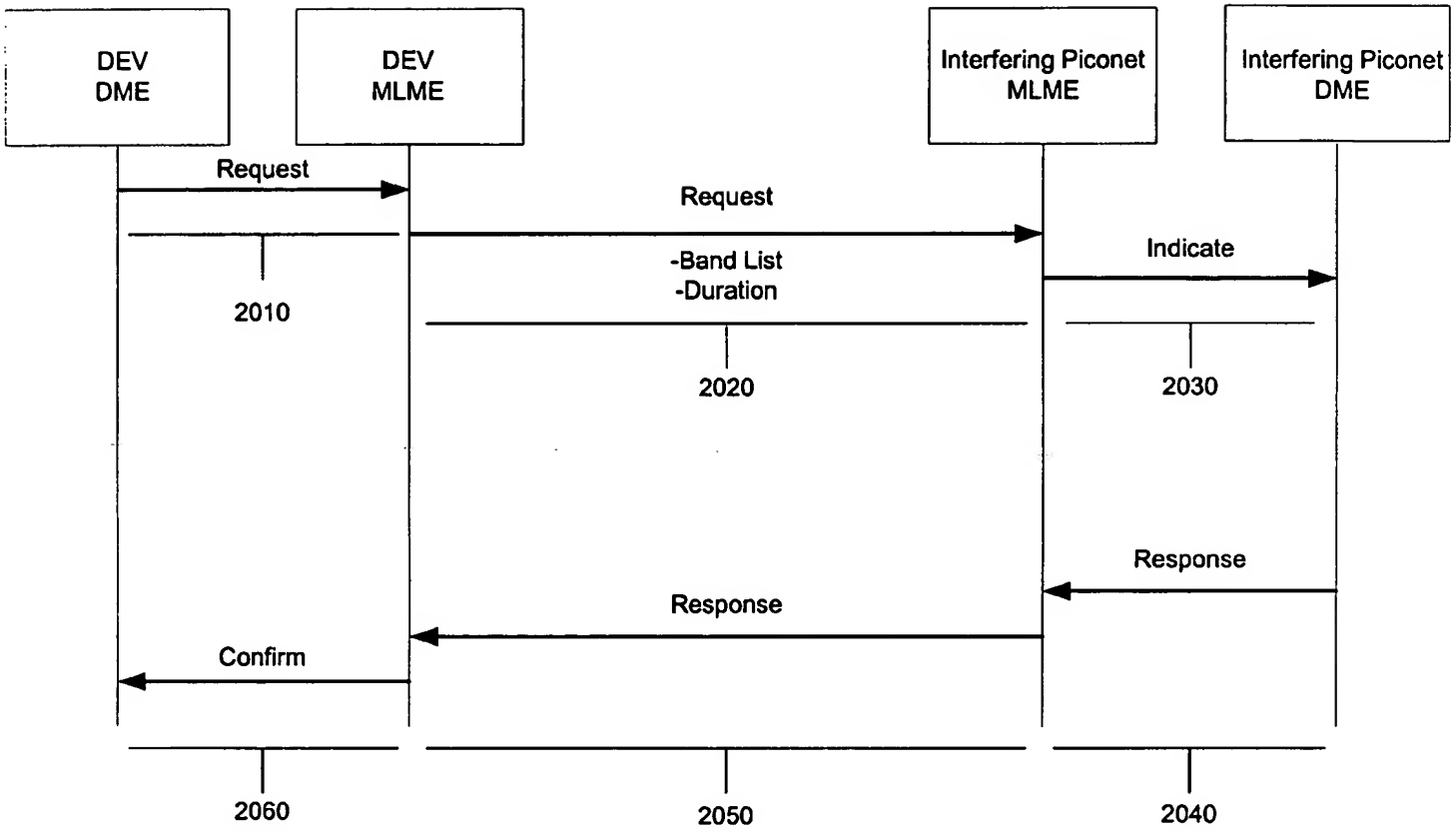
DEV
DME
DEV
MLME
Interfering Piconet
MLME
Interfering Piconet
DME
Request
Request
-Band List
-Duration
Indicate
2010
2020
2030
Response
Response
Confirm
2060
2050
2040

FIGURE 21

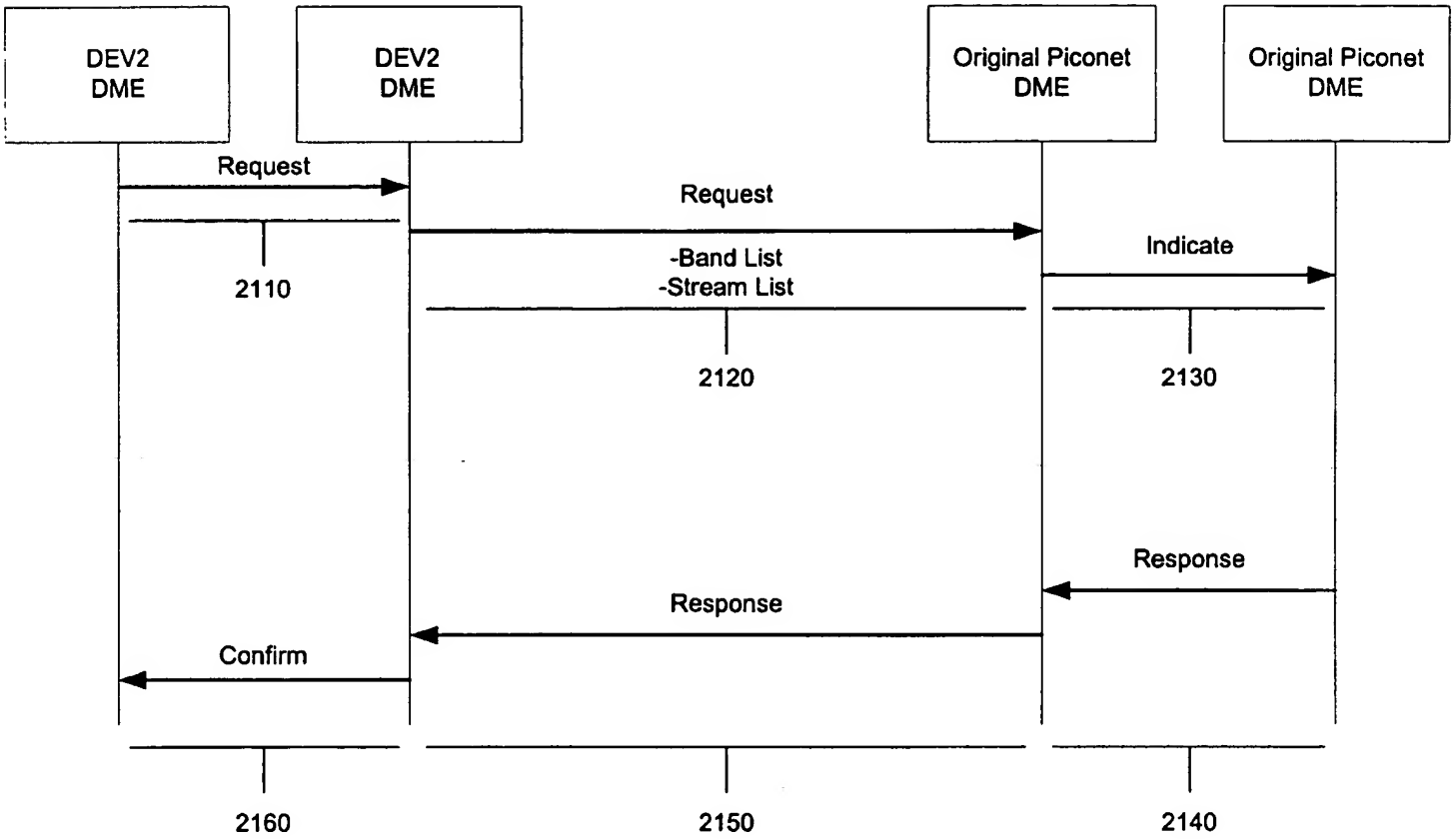
DEV2
DME
DEV2
DME
Original Piconet
DME
Original Piconet
DME
Request
Request
Indicate
-Band List
-Stream List
2110
2120
2130
Response
Response
Confirm
2160
2150
2140

FIGURE 22

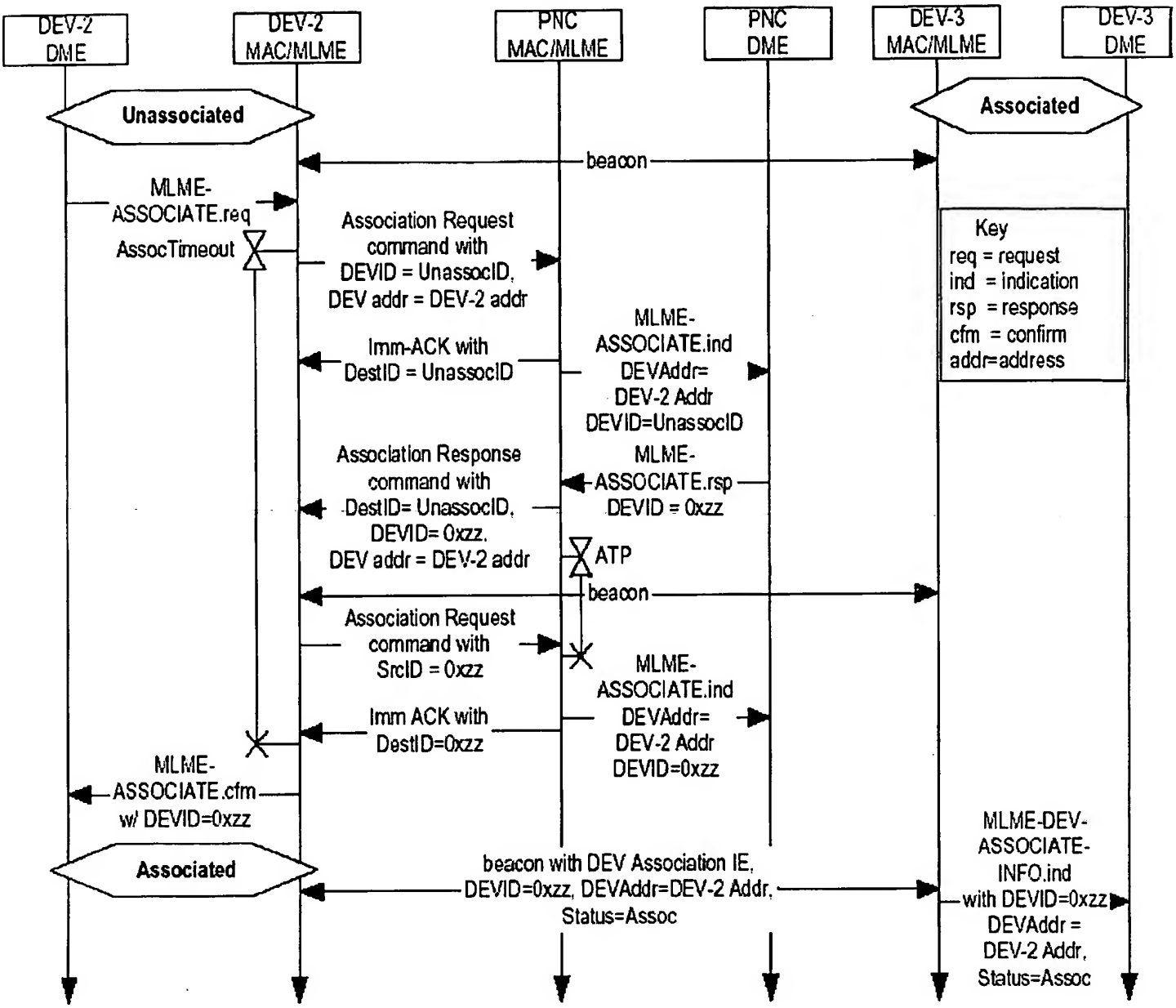
DEV-2 DME
DEV-2 MAC/MLME
PNC MAC/MLME
PNC DME
DEV-3 MAC/MLME
DEV-3 DME
Unassociated
Associated
beacon
MLME-ASSOCIATE.req
AssocTimeout
Association Request command with DEVID = UnassocID, DEV addr = DEV-2 addr
Key
req = request
ind = indication
rsp = response
cfm = confirm
addr=address
Imm-ACK with DestID = UnassocID
MLME-ASSOCIATE.ind DEVAddr= DEV-2 Addr DEVID=UnassocID
Association Response command with DestID= UnassocID, DEVID= 0xzz, DEV addr = DEV-2 addr
MLME-ASSOCIATE.rsp DEVID = 0xzz
ATP
beacon
Association Request command with SrcID = 0xzz
MLME-ASSOCIATE.ind DEVAddr= DEV-2 Addr DEVID=0xzz
Imm ACK with DestID=0xzz
MLME-ASSOCIATE.cfm w/ DEVID=0xzz
Associated
beacon with DEV Association IE, DEVID=0xzz, DEVAddr=DEV-2 Addr, Status=Assoc
MLME-DEV-ASSOCIATE-INFO.ind with DEVID=0xzz DEVAddr = DEV-2 Addr, Status=Assoc

FIGURE 23

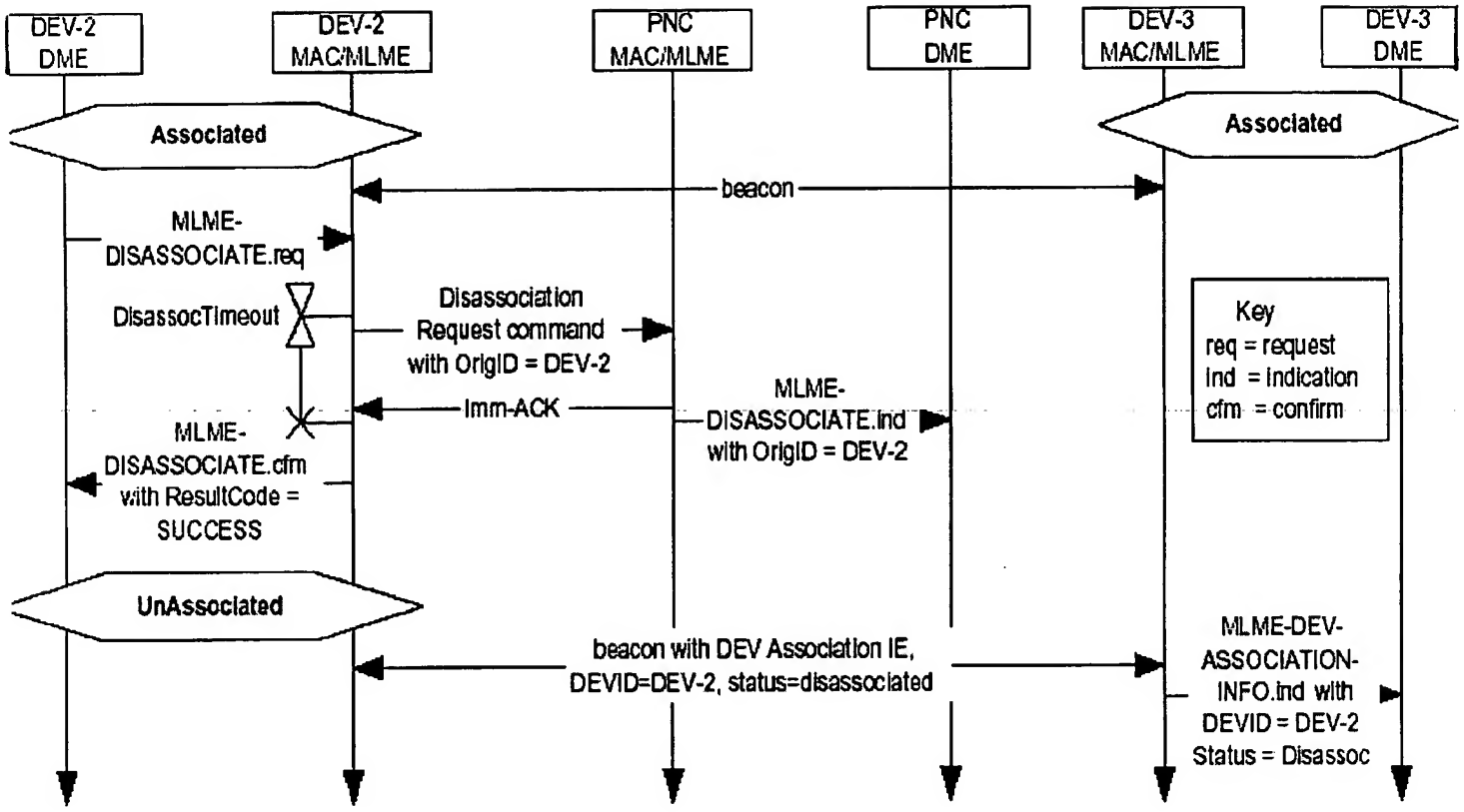
DEV-2 DME
DEV-2 MAC/MLME
PNC MAC/MLME
PNC DME
DEV-3 MAC/MLME
DEV-3 DME
Associated
Associated
beacon
MLME-DISASSOCIATE.req
DisassocTimeout
Disassociation Request command with OrigID = DEV-2
Imm-ACK
MLME-DISASSOCIATE.ind with OrigID = DEV-2
Key
req = request
Ind = Indication
cfm = confirm
MLME-DISASSOCIATE.cfm with ResultCode = SUCCESS
UnAssociated
beacon with DEV Association IE, DEVID=DEV-2, status=disassociated
MLME-DEV-ASSOCIATION-INFO.ind with DEVID = DEV-2 Status = Disassoc

FIGURE 24